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ABSTRACT

As a contribution to research on the reading behavior of adult beginning readers, two experiments were performed with adults reading on the first, second, and third grade levels. The experiments sought to determine whether the pattern of developing strategies in these adults differed from evolving patterns in children learning to read; differences would indicate recommended differences in teaching strategies for these two groups. The subjects, 30 adult basic education students from low socioeconomic backgrounds, read the Woodcock Reading Test word recognition list as well as a paragraph paralleling their achievement on that list, and were then asked to retell the story read. It was found that level one readers were highly conscious of words, level two readers made extensive use of syntax, and level three readers correctly stated but misapplied the rules for word recognition. In the second study the following three strategies for facilitating the integrated use of subskills in word recognition were compared: promoting the use of the students' own procedures, providing students with a set of procedures, and combining the two approaches. The third strategy was found to be the most effective. (DF)

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Word Recognition Strategies of Adult Beginning Readers

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WORD RECOGNITION STRATEGIES OF ADULT BEGINNING READERS

Form of Study

Recent editorials in the Reading Research Quarterly (Farr and Weintraub, 1974-75, 1975-76) have commented on the highly sophisticated and controlled research designs characterizing current research in reading. The point of the editorials was not to compliment the long-awaited degree of sophistication in these studies, but to suggest that a form of "methodological incarceration" has set into the study of reading, resulting in few new questions, a lack of recognition of new variables and an over-examination of sub-skills as opposed to an examination of the integration of these sub-skills into the total reading process.

Farr and Weintraub (1975-76, p. 123) also point to Helen Robinson's clarification between an experiment as a test or trial to find something out about a tentative procedure, and research--"a careful unbiased investigation of a problem in which results are based on demonstrable data." The editors point to the appropriateness of experimentation and other functional, although perhaps not highly controlled approaches to research.

Apparently, now that reading researchers have shown they can do a tightly controlled study, they can be discriminating in the use of these skills. The turn to naturalistic exploratory frame of reference with a goal to generate issues should be welcomed by those who work with students in Adult Basic Education. The highly fluid state of both instruction and students in adult learning

centers has to a large degree obviated well-controlled studies. Students drop in and out in response to job, home and transportation constraints as well as in response to center activities. Selection of subjects or control groups when students meet erratically and membership and commitment of members vary is not always possible.

Since many questions presently needing clarification in adult reading are the types of questions which may best be answered by exploratory experiments or ethnographic research, Farr and Weintraub's positive view toward more open research might also serve as an invitation to researchers to provide more information on the adult reader. The extensive and interesting research on the personality and characteristics of the adult beginning reader has not been matched by research on the reading behavior of these students.

Purpose

This report will first describe an exploration and comparison of the reading behavior of adults reading on a first, second and third grade level. Secondly, the results of a brief experiment contrasting the effectiveness of clarifying currently used reading strategies as opposed to the teaching of specified strategies will be discussed.

The purpose of both experiments is to gain some insight into variables influencing the reading and learning of reading behavior of adult beginning readers. More specifically, the goal is to note if the adult pattern of developing strategies differed from evolving patterns in children learning to read. The extent to which the reading behaviors differ might indicate the extent to which basic approaches to teaching reading should differ.

A number of studies (Weber, 1970; Bliemiller, 1970; Goodman, 1969; Goodman and Burke, 1969, 1973) have provided descriptions of the reading strategies of children; but to date there appears to be no similar description of the reading behavior of adult beginning readers. Given the adult's different experiences and different stage of mental development, it cannot be assumed that the adult approaches or proceeds through the learning to read process in the same manner as a child.

Format

The Goodman (1965) framework provides a sound theoretical and practical approach to analyzing reading strategies. This approach was used to analyze adult's reading behavior.

The word recognition section of the Woodcock Reading Test was used to identify adults as achieving on a grade 1, 2, or 3 level. The Woodcock was chosen since it provides an adult format, high reliability and a scale that attempts to indicate equivalent units as well as a scale for grade level.

Graded paragraphs were developed and adapted to match the Woodcock graded levels using themes relevant to adults (here:food) and adult language as indicated by language experience stories of this adult population.

Adults were asked to read the Woodcock word recognition list and the paragraph paralleling their achievement on that list. Following the reading of the paragraph, adults were asked to retell the story read. Also, since adults have the ability to discuss their own reading behavior, they were interviewed on strategies they themselves used. This took the form of open-ended questions adapted as needed

to obtain specific statements about how the adult approached reading. After the adults read material they were asked "How did you figure out that word? How else could you figure out a word?" Stated strategies were compared to patterns of miscues the miscue analysis revealed the adult to be using. The entire session was taped and later transcribed and coded.

Population

The adults who participated in this study were attending an adult learning center in an urban area. Reading instruction in these centers is based on the Laubach program (a phonics program), use of functional reading materials, and SRA kits. Some small group instruction is provided, however most of the students work independently in workbooks or reading kits with the instructor checking worksheets and providing instruction on a one-to-one "as needed" basis.

The adults range in age from 19-60, approximately equal numbers of male and female, black and white. The majority of these adults are from low socio-economic groups as defined by job identification or welfare status. Number of years of past and recent instruction (erratic or systematic) varied greatly from several weeks since grade school to several years of recent constant attendance at the Center.

Protocols were collected until 30 Level I adults (ten each reading at grade 1, 2, and 3) were tested. The sample consisted of adults present at the learning center during the six afternoons of testing. All students asked agreed to participate. Although some students were nervous initially, they were anxious to help.

Coding

The Goodman (1969) scale was used. This scale provides a method for analyzing

the extent of the use of graphic, phonemic, syntactic and semantic cues. Use of each miscue is rated on a 0-9 scale, the higher number reflecting the greater use of the cue (Goodman, 1969, pp. 21-28). A mean for each type of cue was computed for each adult. The range of adult use of specific cues is reported by grade level.

The general categories of coding can be briefly described in terms of the miscues coded below for the stimulus sentence, "Fred has a huge dog."

Rendered as:	Reflects
1. Fred has a high dog.	1. Use of graphic cues (visual).
2. Fred has a huggee dog.	2. Use of graphic-phonemic cues (auditory).
3. Fred has a large dog.	3. Reflects use of semantic and syntactic cues.
4. Fred has a largely dog.	4. Reflects non-use of syntactic cues.

Miscues were analyzed to determine patterns of reading behavior of adults reading at grade levels 1, 2 and 3. Some further analysis (as $\bar{x}$ of specific miscues per hundred words) was possible but was not used since the number of students in each group was small and this was not a random sample. Moreover, Goodman cautions that:

> "This taxonomy is not suited to studies using a large population and a data sampling procedure. The coding of miscues of an average reader calls for approximately 2,000 separate decisions. . . ." (Hood, 1975-76, p. 581)

In examining the reading strategies of adults, the goal here was to determine patterns of behavior for adults at different beginning levels of reading. Therefore,

range, not means, are examined since means are highly sensitive to extreme scores. Generalizations even in terms of comparisons with Goodman's data are meant to be tentative and exploratory. The description and comparisons facilitate the exploration of variables, but it should be noted that:

a) a sample of convenience is used

b) the range of adult ages, length of time in reading instruction, reading ability, backgrounds are not controlled

c) number and types of miscues are influenced by the type of selection used (Goodman used basal readers, adapted language experience stories are used here)

d) Goodman used a formula of miscues per hundred words. This was not used here since adult grade 1 and 2 readers could not even attempt the next level paragraph and grade 3 readers made few (2-3) miscues on grade 1 paragraph

e) no interrater reliability was established

f) the same experimenter collected, coded and analyzed data.

Protocols of each group are described in terms of group patterns. This approach is not as extensive (in terms of type, relationship and context of miscue) or intensive (individual protocol analysis) as the Goodman and Burke (1969, 1973) studies. However, given the purposes and format of the study, the data collected provide a needed basic description of the adult beginning reader.

Results: Patterns of Miscue

Grade one readers tended to use preceding context. (He looked at; rendered:

He liked at), the initial letter was almost always used and the level of graphic proximity was relatively high both on the word list and in the paragraph renderings. Few miscues were corrected and reading very soon became word calling as frequent word omissions reduced potential use of context. Some adults simply gave unrelated strings of words when material became difficult (text: Just getting away; rendered: Jobs giving all).

Grade 1 readers rarely sacrificed the use of the initial letter and tended to give a word of a similar length. Graphic means (3.5) were consistently higher than phonemic means (2.7), with little individual variations. There was great variations in the use of syntactic cues (3.1-7.4), but a lower and less varied pattern in use of semantic cues (1.3-4.6).

This coincides to some extent with Goodman's findings (1973) of low level two readers (presumably reading as a grade 1 or lower level), low use of graphic cues, lower use of phonemic cues and much variation in the use of syntactic and semantic cues.

The main difference between the adult and child grade 1 reader seemed to be in comprehension (here: recall). Using a few key words or what would amount to telegraphic speech, adults reconstructed parts of the story amazingly well. This can be accounted for by the nature of the theme (visiting a restaurant) and the fact that the story was developed along the lines of a story dictated by a similar group.

For grade two adult readers there was a distinct change in the pattern of miscues. Most miscues had a high semantic and syntactic proximity and graphic and phonemic

cues were sacrificed to the meaning cues. For example, in the paragraph reading, the following pattern emerged:

Text		Rendering
certain	-	several
his	-	the
little	-	small

However, in the word list where only graphic and phonemic cues were available, most miscues showed high graphic and high but subordinate use of phonemic cues. Blends, either rendering /b/ as /bl/ or /sp/ as /s/ were a consistent source of miscues on the word list, but this same pattern did not emerge in the paragraph reading. Most miscues in the list and paragraph reading were meaningful words and few words were omitted. Adults at this level apparently have the basic skills to use graphic and phonemic cues but do not integrate these skills with used context (semantic and syntactic cues) in reading connected discourse.

Where use of graphic and phonemic cues were low but consistent over adult grade 1 readers, there was a slight increase but erratic use of these cues in grade 2 readers. It should be noted that while the reported range on use of graphic cues (see Table 1) does not differ greatly from the grade 1 range, the actual observed pattern differed. Grade 1 adult readers consistently used initial letter consonants and sometimes words similar in pattern (come, came; ride, rode). The grade 2 adult readers tended either to ignore graphic and phonemic cues or to give highly graphically similar words even with multisyllable words (decide, decode). Thus, ranges are similar, but for different reasons. There was higher use of syntactic cues (range

1.4-6.3) and an increasing but lower use of semantic cues (range 1.8-5.2).

This is somewhat consistent with the pattern of miscues made by Goodman's (1973) low average and high average grade 2 readers. Greater use is made of graphic and phonemic cues, the 2 low readers varied more in sensitivity to syntax but did respond to syntactic cues. Here the adult use of syntax was consistently higher with the exception of two adults (perhaps due to the nature of the material). The increase and leveling off of use of graphic and phonemic cues Goodman found in the children is not evident here. This may be because of the pattern noted above or because the adult range of grade 2 readers here is broader (includes average and high average). However, there was also no firm increased use of graphic cues in adult readers in grade 3 (see Table 1), although here the upper range is consistently higher.

There was a higher use of syntactic over semantic cues, but this may be partially a function of the coding. Comprehension, here recall, was apparently not influenced by the type of miscue.

The grade three adult reader's pattern of miscues did differ from the adult grade 1 and 2 reader. Syntactic and semantic cues were much used. Miscues did change sentence meaning but rarely influenced correct recall. There were many uncorrected miscues, the first syllable versus first letter was usually correct, and there were more non-words in prose reading, for example:

Text		Rendering
throbbing	-	troubling
gruffly	-	graffy
screeched	-	scrussed
practice	-	bert ract

Again, overall recall was not distorted by these miscues. Less than half of the miscues were corrected, the reader seemed to focus upon global meaning. Use of graphic and phonemic cues was slightly higher (range 2.9-5.3, range 3.2-4.4). The use of syntax stabilized (range: 5.0-7.1), use of semantic cues was even lower (2.2-3.9), reflecting the tendency to use syntactically correct non-words or the attempts to decode more "difficult" words. Adults appear to be attempting to integrate context and graphic/phonemic cues at this level.

Again, similarity with the pattern of Goodman's 2 high (or presumably grade 3 readers) is reflected in balanced use of graphic/phonemic cues, with graphic cues still slightly higher, and ~wing use of syntax. The adult's use of semantic cues at this level appears much lower in relation to other cues than Goodman's grade 3 readers. An overview of the developing use of cue systems can be seen by analyzing Table 1 below. Individual behavior, for example, one grade 1 reader with 7.4 syntactic mean and one grade 2 reader with a 1.4 syntactic and phonemic mean eradicate some patterns. The idiosyncratic patterns suggest the need to search for factors accounting for widely varying use of skills. Follow-up discussions with adults lead to identifying time in current instruction, type of instruction, attitude toward risk taking, individual achievement potential, language and learning style, attitude toward reading aloud and similarity of materials to current instructional materials as potential factors present in behaviors observed.

Table 1

Range of Adult Miscues
in Rendering Prose

	Grade 1	Grade 2	Grade 3
graphic cue range	2.9-3.8	2.4-4.8	2.9-5.3
phonemic cue range	2.4-2.9	1.4-4.7	3.2-4.4
syntactic cue range	3.1-7.4	1.4-6.3	5.0-7.1
semantic cue range	1.3-4.6	1.8-5.2	2.2-3.9

Some potential differences in adults and children reading at the same level can be explored. Barr (1974-75) found first grade students influenced by type of instruction. Specifically, students instructed in a phonics approach made many non-word miscues. It was rare for a student reading at grade 1 in our population to make a non-word error despite the fact that they had usually been exposed to or were being exposed to systematic instruction in phonics. Use of non-words did not evolve until student had more reading skill and ability; or more instruction.

Weber (1970) examined the number of words with shared letters: her high group (mean on Metropolitan Achievement Test 2.8) of first graders made 430 errors with shared letters versus 280 of low group; only 12% of their errors had no shared letters versus 27% of the low group (mean on Metropolitan 1.6). For the adult, the grade 1 group made much higher use of graphically similar words or words with similar letters, especially the first letter and the grade 2 group made more non-graphic type errors, responding more to semantics and syntax. Again, the material may have accounted for this difference. The adult paragraphs had been specifically adapted to this population.

Weber, in her analysis of first grade readers, found 92% of miscues grammatically similar. This was not so for adults. Graphic constraints and word awareness ruled grade 1 readers. This was unexpected since Weber's children were reading from material with very short sentences and had more limited experience with print. One pattern of miscues by Weber's children and adults are, however, similar--come rendered as came. Both groups were highly dependent on the initial letter of the word.

Overall, however, the adult pattern of miscues as examined broadly in terms of three graded levels are not very different than that found for children. The adult pattern is expectedly more idiosyncratic since a wider range of schooling and other experience is represented. However, with the exception of the drop in use of semantic cues for the adult grade 3 readers and the general stable pattern of use of graphic cues, no major differences were noted. Goodman's conclusions that poorer readers have all cue systems available but have problems integrating the use of these cues seems especially true for adults. In fact, the grade 3 adult's limited use of semantic cues may suggest the integration problem starts later and lasts longer for adults. It would be helpful to know, but cannot be established here, if this is a function of teaching materials, students' language skills, learning style or other factors.

Adult's Self-described Strategies

Following the reading of the Woodcock list and parallel paragraphs, adults were asked to explain how they figured out specified words. When the adults' description appeared to match observer recorded miscues, the description was considered accurate. Beside the self-described strategies below, the reading level of the adults who tended to give this description is noted. Adults who accurately described apparent reading

strategies said they:

a) say the first sound and think. (This group usually came up with associations, for example, public--it's like school, or would say "I know I know that word, I've seen it before," and after 30 seconds could say the word.) (Grade 1)

b) look at the first letter, think of a word like it--see if other letters fit. (Grade 1)

c) look at the word for a known part--and repeat that part until "something in my head told me what it was." (Grade 2 and 3)

d) spell out the word, give the first sound and check if the word made sense. (Grade 2)

e) sound it out, (each letter). (Grades 1, 2, 3)

f) say the first part and read on and see if it fits. (Grades 2, 3)

g) say the word and see if it fits. (Grades 2, 3)

The readers who did not do what they said were generally those who gave rules:

a) I divide it into syllables--(adult ex: demand between the /n/ and the /a/ and say /e/. (Grade 3)

or

b) I see if it's a long or short vowel--(adult points to was) "that's long /ā/" then correctly read the word. (Grades 2-3)

The adult grade 1 readers' verbalized strategy of making a visual match suggests confirmation of the model proposed by Calfee and Venezky (Cunningham, 1975-6, p. 131) but for adults at grades 2 and 3; this approach was changed to high use of context.

Discussion

Essentially, the adult (grades 1, 2, and 3) strategy in word lists appears to be to make a visual scan or match attending very little to vowels and finding a word with a similar pattern. This is not the procedure when (grades 1, 2, 3) adults read prose. Different strategies are needed/used at different stages based on availability of context. The high word consciousness of the grade 1 adult reader, the extensive use of syntax of the grade 2 adult reader, and the correctly stated but misapplied word recognition rules and the seeming expectation that words may not be in their repertoire (i.e. need not make sense) of Grade 3 readers, need further analysis in terms of individual patterns of development. It cannot be assumed that because specific patterns appear in grade 1, 2 and 3 adult readers that this represents an evolution or development, it may be that certain patterns represent reading behaviors which are inhibiting development of skills. Factors such as length of time in directed learning of reading, amount of reading done outside of instruction (where strategies would be practiced or fixed) as well as variables noted earlier might be considered in analyzing adult beginning reading behavior. Case studies or long term research would help determine if these behaviors facilitate or retard growth.

Part II

The information gained on patterns of adult reading behavior confirmed Schwartz's (1977) stress on the lack of "interrelatedness of sub-skills in the skill profile of the poor reader." The fact that adults had specific skills as shown in decoding of words in the word list but were not able to integrate the use of these skills in prose reading also reaffirms Schwartz's suggestion that there may be a general cognitive

factor mediating transfer between sub-skills. Schwartz asked that attention be paid to the lack of interfacilitation and "planfulness" in calling up sub-skills.

Three strategies for facilitating the integrated use of sub-skills in word recognition were compared in the second part of this experiment.

The first strategy (A) was based on observed behaviors of adult learners: fear of taking risks, low levels of frustration, feeling of helplessness and avoidance of a difficult task. This first strategy consisted simply of promoting the use of the students' own procedures. Students' word analysis skills (as employed in a word list and prose) were discussed, clarified and reduced to a series of steps. It was felt that starting with the students own strategies would reduce feelings of helplessness by providing the adult with a plan for meeting the unknown and since strategies to be employed involved known procedures, frustration, fear of risks and avoidance would be reduced. It was also hoped that the clarification of the students' own strategies might enable adults to recognize dysfunctional behavior and to more systematically use effective reading behavior.

The second strategy (B) evaluated, involved providing students with a predetermined set of procedures. In the analysis of adult reading behavior, adults reading at a third grade level were found able to state, but not correctly use, rules. However, this strategy involved steps in calling up rules, not simply stating the rules themselves. This type of verbalization of problem-solving procedure has been found helpful elsewhere (Gagné and Smith, 1962); (Stauffer, 1975).

Stauffer (1975) involved students in actively and consciously using a series of word analysis strategies by reviewing with students as a pre-reading activity, steps they could take when they met an unknown word. Y. Goodman and Burke (1971)

also suggested strategy lessons for word recognition but these lessons appear to be more practice of a strategy without emphasis on cueing a student or asking a student to cue themselves in calling up the use of these sub-skills.

Cooper and Petrosky (1976) and Cunningham (1975-76) have analyzed views of reading process and theories and clarified specific implied strategies. Using this as a base and guided by the Goodman (1969) model, the following problem solving steps were selected to be presented to students:

1. Look at first part of word and say any parts you know.
2. Blend known sounds, trying for a meaningful word.
3. Make up or repeat the phrase in which the word appears until the word is meaningful in context.

The third strategy (C) taught was simply a combination of strategies one and two. Adults' own reading behaviors were clarified, steps in strategy two not already employed were added.

Procedure

Using a sample of convenience, adults were given the Woodcock (Form A) and a series of matching graded paragraphs (paragraphs using the same words in the Woodcock list) as a pre-test. With six of the students their own procedures were first discussed, clarified and then practiced with three unknown words in isolation and three unknown words in context. Then the Woodcock (Form B) was administered with the parallel set of paragraphs. Order of presentation was not controlled in this experiment. The word list was presented first, then the paragraph containing similar words. After oral reading, the story was retold. All reading was taped,

but only gain scores were analyzed. For group B (n=6) and C (n=6) the Woodcock pre- and post-tests were given and the same general procedure followed (3 words in list, 3 in context), but the steps noted above were practiced.

Stimulus words were naturally read correctly more often in the prose presentation since this was the second time the adult was exposed to these words. Therefore, while use of strategies in prose reading was noted, gain scores on paragraphs were not analyzed. Adults did attempt to use stated (A), taught (B) and combined (C) approaches reviewed in both the reading of word lists and prose. Only gain scores on the word recognition list of the Woodcock were considered in describing improvement in word recognition skills. There was no or little change for students using strategy A, with the exception of two adults reading at grade 1. Students using strategy B improved some, but only slightly (3-4 words). Apparently the introduction of new strategies made adults more alert and miscues on "easy" words were less frequent on the post-test. All students using the third strategy (C: clarification of their own strategy and introduction of new steps) improved, with the exception of adults reading at a first grade level.

A more systematic analysis of adult reading behavior and the impact of specified strategies on achievement is in progress. This report of these experiments is simply a first step of looking more closely at the long neglected reading behavior of adult beginning readers.

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